〈Note〉

Is It Possible for an International Organization to Predict the World Economy?*

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Abstract

Policymakers make economic forecasts for the future economic stability and the development of their own countries. To make policy decisions effectively, accurate forecasts are required. Low quality of forecasts may reduce confidence in the markets and destabilize conditions in an economy. Policy authorities are needed and requested to predict economic variables as accurately as possible. This paper shows that the IMF can predict the economy one-quarter ahead.

1. Introduction

Policy decisions require accurate forecasts of future economic trends. Consumers and companies need to obtain accurate forecast data to decide their actions. In reality, forecast models are mis-specified, the economy is subject to unanticipated shifts, and the failure to make accurate predictions is relatively common (Hendry and Ericsson, 2001). The International Monetary Fund (IMF) also forecasts economic activity and is sometimes evaluated. The forecasts seem to reveal what IMF knows about the current and future conditions of each economy. Confidence in IMF forecasts may be related to the accuracy of forecasts in general.

Modern developments in information and communication technology have enabled forecasts that frequently depend upon the perceived needs of the potential users of the forecasts and also on the availability of updated

data. Much attention has been paid not only to the IMF's forecasts but also to those of other institutions.

The forecast data calculated by IMF are evaluated all over the world and employed in both academic and business worlds. These forecasts receive much attention. On the other hand, it is uncertain whether or not these forecasts are accurate. The evaluation depends on people or markets. It is necessary to examine these predictions as they are very influential and sometimes affect economies all over the world. Recently a few papers have shed light on the accuracy of the forecasts of the main economic institutions. In the academic field, Lamont (1995) indicated that forecasters may use their forecasts to manipulate beliefs about their ability in the presence of principal-agent problems. Dominitz and Grether (1999) employed empirical analyses and found that lagged variables and constant terms are not significantly different from zero, so forecasters seem to be using information from several sources. Galiti et al. (2009) stated that forecasters are often criticized for failing to predict outcomes and that this criticism can be justified if the forecasters rely on point estimates rather than providing a measure of the uncertainty around their estimates. Kim and Kim (2009) found highly persistent systematic mistakes, which are driven by inefficient use of available information, and rejected the rational expectations hypothesis. Kajal and Xuguang (2010) showed that professional forecasters begin and have relatively more success in predicting inflation than real GDP for significantly longer horizons because of data availability and frequency. However, only a few papers have been presented and none of them focus on IMF forecasts. This paper sheds light on the IMF relative to main International Institutions and examines whether or note it can predict the economy.

This short paper shows definitions and data in section 2. Section 3 employs and shows an empirical method. Section 4 shows the results and analyzes them. Finally this paper ends with a brief conclusion.

2. Data

The data employed here is from IMF's World Economic Outlook. They are one-year-ahead forecasts for the period 1985–2009 for three economic variables: real output growth rate, inflation rate (consumer prices), and unemployment. The actual data are also from the same source. Countries included are G8 countries (except Russia because of data availability).

3. Empirical analysis

The regression equation employed here is as follows:

$$A_t = \alpha_0 + \alpha_1 P_{t,t-1} + \varepsilon_{t,t-1} \quad (1)$$

where A and P are the actual and predicted values for time t. The forecast is conditional on information available at time t–1. It is a one-year-ahead forecast. For informational efficiency, the null hypothesis is $\alpha_0 = 0$, and $\alpha_1 = 1$. A rejection of the hypothesis means that the forecasts are biased and/or inefficient.

This paper employs the Mincer-Zarnowitz regression method.[1] This method uses information about the condition of each economy. A revised estimation is employed as equation (2):

$$A_t = \alpha_0 + \alpha_1 P_{t,t-1} + \alpha_2 D_{t,t-1} + \varepsilon_{t,t-1} \quad (2)$$

where D_t is a dummy variable that reflects the state of the economy. In the cases of growth and unemployment, the dummy variable has a value of 1 if the economy was in a recession (continuously for three years, decreased for growth and increased for unemployment) and zero otherwise. For inflation, the dummy takes on a value of 1 (continuously for three years, decrease) and zero otherwise. The joint null hypothesis is: $\alpha_0 = 0$, $\alpha_1 = 1$, and $\alpha_2 = 0$. If the coefficients are not zero, it can be judged that they contain information that

can explain the forecast errors. This also means that the IMF did not use the information on the condition of the economy.[2] In this paper, two different methods are examined. One is the case of a one-year-ahead forecast and the other is the case of a current forecast.

Note how the current forecast differs from the one-year-ahead forecast from the previous year. It should be checked. Both forecasts are checked in equation (3):

$$P_{t,t} - P_{t,t-1} = \beta_0 + \beta_1 S_t + \varepsilon_t \tag{3}$$

Next section performs empirical analyses and examines them.

4. Empirical results

The results of equation (2) are shown in Tables 1a and 1b.

Table 1a. Current forecasts

	Constant	Slope	Dummy 1	Dummy 2	Dummy 3	Wald Test
Growth	0.355* (0.156)	0.997*** (0.041)	−0.441 (0.562)			0.04
Inflation	−0.314** (0.124)	1.003*** (0.022)		0.223 (0.127)		0.03
Unemployment	0.008 (0.046)	0.998*** (0.003)			0.019 (0.018)	0.08

***, **, and * are significant at 1%, 5%, and 10% levels. Parentheses are standard errors.

Table 1b. One-year-ahead forecasts

	Constant	Slope	Dummy 1	Dummy 2	Dummy 3	Wald Test
Growth	1.426*** (0.531)	0.878*** (0.162)	−1.592 (0.512)			0.007
Inflation	−0.448 (0.341)	0.997*** (0.044)		0.314 (0.087)		0.002
Unemployment	0.0053 (0.088)	0.978*** (0.010)			0.024 (0.041)	0.005

***, **, and * are significant at 1%, 5%, and 10% levels. Parentheses are Newey-West standard errors.

The coefficients of the dummy variables are not all significant in the two equations. These results suggest that the IMF knows the condition of the economy for the next period.

In the case of the growth equation, the dummy variable is negative. This may mean that the IMF has overestimated the real GDP during the recession period; however, it is not significant. In the case of inflation and unemployment, the IMF may underestimate the forecasts; however, they are both not significant. Again, we can say that the IMF forecasts the economy correctly.

The estimated results of equation (3) are shown in Table 2.

Table 2. Bias test for forecast revisions

	Constant	Dummy 1	Dummy 2	Dummy 3
Growth	0.988* (0.177)	−0.782 (0.313)		
Inflation	−0.237* (0.181)		0.181 (0.108)	
Unemployment	−0.110*** (0.022)			0.119 (0.035)

***, **, and * are significant at 1%, 5%, and 10% levels. Parentheses are standard errors.

When in a recession, it is expected that IMF revises the GDP downward and also revises unemployment upward. When inflation is increasing, the IMF forecasts inflation upward. However, this is not true. The IMF forecasts economic variables correctly. Sinclair et al. (2010) stated that forecasts contain systematic errors and that they overestimate the rate of growth during slowdowns and recessions and underestimate it during recoveries and booms in the case of the Fed. The results are similar to those of this paper.

5. Conclusions

This paper employed forecast data from the IMF and found that the condition of the economy can be forecast by the IMF. Also we can say that

systematic errors do not exist in the forecasts.

Policymakers should predict the economy for sound economic growth. If they cannot, people lose confidence, which sometimes causes serious economic recession or instability. This paper employed empirical analyses to check the accuracy of the data of the IMF's three variables. The IMF could have predicted the economy in the sample period at least for the G7 countries.

Notes

1. See Holden and Peel (1990) and Sinclair et al. (2010).
2. The Mincer-Zarnowitz regression is actually a joint set of a symmetric loss function and informational efficiency. However, the IMF may not have a symmetric loss function. Sinclair et al. (2010) analyzed the case of the Fed using the GMM method and over-identification tests. The Fed may have an asymmetric loss function for inflation rate. See Elliott et al. (2008).

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